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Statement of
Henry Eschwege, Director
Resources and Economic Development Division
United States General Accounting Office
before the
Committee on Labor and Public Welfare
United States Senate

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on
Selected Federal Enforcement
and
Safety Activities Involving
Coal and Noncoal Mines

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Mr. Chairman and Members of the Committee:

The General Accounting Office has had a great interest in the implementation of the Federal Coal Mine Health and Safety Act and has issued several reports on this area since the passage of the act in 1969.

We welcome your invitation to be here today to discuss the results of our latest review relating to the Federal coal mine dust-sampling program and the penalty assessment and collection procedures. The Comptroller General issued a report on these matters on December 31, 1975 (RED-76-56). At your request we will also briefly discuss our report to you dated February 12, 1976 (RED-76-64), in which we analyzed closure orders issued under the Federal Metal and Nonmetallic Mine Safety Act of 1966.

COAL MINE DUST-SAMPLING PROGRAM

^{GAO}
We reviewed the Federal dust sampling program to determine the validity of the procedures being used and the accuracy of the Department of the Interior reports that more than 90 percent of the Nation's operating coal mine sections had reduced the levels of respirable coal dust to amounts that were better than the standards required under the applicable statutes. Respirable coal dust may cause a type of pneumoconiosis commonly known as "black lung" disease.

At your request the National Bureau of Standards (NBS), in conjunction with our review, evaluated the adequacy of the sampling equipment used by Interior's Mining Enforcement and Safety Administration (MESA) to measure coal dust concentrations in mines. The NBS report on the results of its technical evaluation was also issued on December 31, 1975.

We understand that officials of NBS are here today and are prepared to present their statement on the work they performed.

The Federal Coal Mine Health and Safety Act of 1969 requires that the average concentration of respirable dust to which a miner is exposed cannot exceed 2.0 milligrams per cubic meter of air. To help insure compliance with respirable dust provisions of the 1969 act, MESA is required to inspect underground coal mines at least four times each year. If mine operators do not take the proper number of dust samples, do not follow required sampling procedures, or if samples taken show dust concentrations in excess of the established standard, MESA is to issue a notice of violation to the mine operator, establish a reasonable time for the operator to correct the violation, and assess a civil penalty against the operator.

MESA officials, mine operators, union officials and the miners themselves generally agreed that improvements have been made to reduce the levels of respirable coal dust in mines since the coal mine dust-sampling program was initiated in 1970. However, we noted many serious weaknesses in the program which affected the accuracy and validity of the results and which, in our view, made it virtually impossible, under current procedures to determine how many mines are in compliance with the dust standards established by the 1969 act.

Dust samples are taken with personal samplers approved by Interior and the Department of Health, Education, and Welfare (HEW). As of the date of our review, four personal samplers were approved--two by Bendix Corporation and one each by Mine Safety Appliances Company (MSA) and Willson, Inc. Almost all samples, however, were being taken with the

Bendix or MSA samplers because the Willson sampler was only recently developed. Dust samples are sent to MESA's Pittsburgh, Pennsylvania, Technical Support Center where they are weighed and analyzed. The samples are sent in a cassette which consists of a plastic enclosure into which the dust filter capsule is sealed. Sample weight data is then transmitted to Interior's Bureau of Mine's data processing center in Denver, Colorado, where dust concentrations are computed to determine whether the mine sections are within the dust concentration standards.

Under MESA's sampling plan, NBS estimates that the overall uncertainty calculated for the average sample, is a minimum \pm 20 percent. However, this estimate does not include estimates of additional error resulting from user neglect or inexperience, and other improper practices, such as those which we noted during our review. NBS believes that the additional error would be significant and could nearly double the estimated error rate.

MESA informed us that a dust cassette weight loss problem has been corrected and that several improvements have been made to the dust sampling equipment since the inception of the program. Still, the uncertainty of the equipments' accuracy in the mine environment, operators and miners not following proper sampling procedures, and slightly inaccurate weighing of cassettes make current dust measurements questionable.

Improper Sampling Procedures

During our review, ^{FAO} we observed improper sampling procedures at every one of the 14 mines we visited. Examples of some of the most frequent improper procedures we noted included:

- Samplers were not continuously operated from the time the miner entered the mine until he left it (portal to portal);
- Mine data cards which show the time the sampler was operated and the amount of coal produced were completed before the sample was taken;
- Contrary to requirements, the individual sampled was not within 3 feet of his sampler; and
- The sampling head assembly and pump unit were from different makes of samplers, which were not interchangeable.

Deviations from required procedures usually results in inaccurate dust measurements.

We believe that proper sampling practices were not always being followed by miners and mine operators because:

- Samples were selected and controlled by mine operators.
- MESA inspectors were generally unaware of the mines where samples were being taken and therefore could not routinely visit such mines to help insure that operators followed proper sampling practices.
- Fines for mine violations were nominal and often were not promptly collected.

--Miners do not like to wear cumbersome dust samplers and MESA had not been totally successful in helping miners understand the purpose of the program and the need for proper sampling procedures.

--MESA's training course for coal mine officials did not sufficiently explain sampling procedures or emphasize their importance.

Many miners do not seem to understand proper sampling procedures or the purpose of the dust sampling program. We asked miners what the purpose of the sampling program was, and some said the dust samples would be used to determine if they were eligible for black lung benefits.

Equipment and Weighing Problems

As we stated in our report, inaccuracies are also introduced into the dust measurements by the sampling equipment used and the weighing of coal dust cassettes.

NBS noted that MESA and manufacturers' cassette weighings were not accurate before 1975 because:

--Bendix Corporation cassettes, which are used in over 40 percent of the samples, exhibited problems with quality control resulting in a large number of inaccurate weights being stamped on the cassettes.

--Both Bendix and MSA cassettes, the latter to a lesser degree, lost weight during storage.

MESA stated that Bendix has corrected both its material and quality control problems. NBS found, however, that an apparently unavoidable manufacturer and MESA weighing error still exists.

Basically, NBS concluded that dust sampling data collected with the equipment in laboratories, was fairly accurate. NBS scientists said, however, that in underground sampling the physical impairments such as jarring the sampler and dynamic properties of the coal mine atmosphere are not adequately understood in terms of their effect on the accuracy of coal dust measurements.

Experiments conducted by the Bureau of Mines and an independent coal association have shown that errors in many different sets of field measurements varied from 8 to 50 percent. The larger variations were obtained in the mine in spite of the fact that the samplers were carefully maintained and operated by relatively skilled and knowledgeable individuals. Preliminary results indicate that dust measurement errors are greater when taken by miners under less controlled conditions. Under these conditions the error rate could be at least 50 percent.

We observed several instances where the handling of equipment could have caused inaccurate sample results. For example, a miner was wearing a jacket which, at times, covered the sampler unit and another miner, wearing a sampler, was lying on a conveyor belt that was covered with coal dust. These could have affected the measurement of the dust concentration.

Considering the severe hazards to health resulting from high levels of respirable coal dust in the mine atmosphere and recognizing that present and projected energy shortages will require expanded coal production in this country, it is more important than ever that the provisions of the act be effectively carried out and that all operating sections of the

Nation's coal producing mines attain levels of respirable coal dust at, or below, the statutory maximum.

To this end, we recommended that the Secretary of the Interior and the Secretary of HEW, further improve the dust-sampling equipment. We recommended also that Interior jointly conduct a study with HEW to determine the accuracy and reliability of dust measurements when taken with the current equipment and make whatever program changes that may be required as a result of the study.

Also, we recommended that operators be required to notify MESA when samples will be taken so that it can consider using this information in scheduling mine visits, that proper sampling procedures be discussed in more detail during training sessions for mine officials, and that MESA work with United Mine Workers of America and coal mine officials to help miners understand the purpose of the dust sampling program and the need to follow proper sampling procedures.

HEW and the equipment manufacturers generally agreed that the dust sampling program has certain limitations. MESA officials stated, however, that the current dust sampling program was primarily designed to reduce the respirable dust levels in coal mines and to show the direction and general magnitude of that reduction. The officials stated that the program has sharply reduced the dust levels and the compliance rate has been established, to a sufficiently accurate degree, to measure the success of the program. They further stated that their dust sampling program uses the best available equipment.

ASSESSMENT AND COLLECTION PROCEDURES

We also reported on MESA's assessment and collection procedures which were in affect during the period April 1973 through July 1974. Civil penalties are assessed by the Federal Government to help insure that coal mine operators comply with existing health and safety standards. As a result of two earlier reviews (1972 and 1973) of the penalty assessment and collection program, we reported on the need for (1) management controls to insure timely processing and collection of fines and (2) guidelines for a systematic and objective application of penalty assessments. While MESA's 1973 revised procedures appeared to be an improvement they were not entirely effective and, at the time of our review over 2 years later, further improvements were needed because:

- Penalty assessments, settlements, and collections continued to be untimely.
- Penalties paid were much lower than the amounts originally assessed and therefore it was questionable whether they were an effective deterrent to noncompliance.
- Factors used to determine penalty amounts still were applied inconsistently.
- MESA could not insure that all violations were assessed, settled and/or collected.

We selected for review 456 notices to operators for violating respirable dust standards and noted it took MESA an average of 149 days from the date of abatement (correction) of the violations to assess the penalty

for each of the violations. For the 83 violations that had been settled, the average assessed penalty of \$200 was reduced by the Solicitor to \$70, a reduction of 65 percent. We were advised that the penalty finally decided upon by the Solicitor's office took into consideration factors such as the amount of evidence to support the case.

Our sample also showed inconsistent application of assessment factors by MESA, such as whether the violation is "serious" or "nonserious" and often resulted in different penalties for similar violations. We found inconsistencies in the application of the assessment factors to be greatest in determining the gravity of the violations. For example, 99 violations included in our sample were for the mine operators' failure to submit individual dust samples. Twenty-eight of these were considered serious while 71 were considered nonserious. Illustrations of statements provided by assessors relative to the gravity of the situation included:

Assessor A

"The failure to submit the required respirable dust samples does not indicate a hazard; however, it is difficult to ascertain that the dust level is below the maximum allowable level without samples. For lack of evidence to the contrary, it is found the violation is nonserious."

Assessor B

"Unless the operator takes the required samples, he is unable to determine the concentration of respirable dust, which could be excessive, in the atmosphere of

his employees. Prolonged exposure to high concentrations of respirable dust may lead to pneumoconiosis in those persons so exposed. Based on the foregoing facts, it is found that the violation was serious."

In another example, we noted that a single violation was assessed twice by the same office. One assessor said it demonstrated ordinary negligence while another said it demonstrated gross negligence. One assessor established a fine of \$225 and the other set the fine at \$450 for the same violation.

In addition, we noted that MESA did not have an information system to insure that all violations were assessed and once assessed were collected. Some violations were assessed twice and others should not have been assessed at all.

MESA again revised penalty assessment, settlement, and collection procedures for all coal mine health and safety violations effective August 1, 1974. Neither we nor MESA officials have evaluated the effect of MESA's new assessment procedures; MESA officials however, stated that they should result in a more effective deterrent of noncompliance because fines are being assessed sooner and are more readily identifiable with the violation.

MESA officials also said that when a new computerized information system is implemented it will provide MESA with controls to insure that penalties are assessed and collected on time for all valid violations.

Our limited review of the new procedures showed, however, that very little or no change has been made to help the assessor determine the gravity of the violation. Also, we question whether the amounts of the fines, which will be less than before, will deter noncompliance of health and safety standards. We were advised that the present assessments are smaller because they are based on amounts which had been paid in the past after reductions were made by the Office of the Solicitor as discussed previously. MESA, however, made the reductions in assessed penalty amounts without making an appropriate evaluation to determine the potential effect on compliance.

We made recommendations to strengthen the procedures and to reconsider the appropriateness of assessed penalties.

As of this date the Department has not notified us of any actions contemplated on our recommendations in our report.

CLOSURE ORDERS ISSUED TO NONCOAL MINES

In response to a further request of this Committee, ^{GOO also} we obtained information on closure orders issued to noncoal mines by MESA. Issuance of such orders is authorized by the Federal Metal and Nonmetallic Mine Safety Act of 1966. I would like to emphasize Mr. Chairman that the statistics that I am about to cite deal with metal and nonmetallic mines and do not cover coal mines. For example, we are talking here about lead and zinc, limestone, and sand and gravel mines, etc.

The objective of the act is to eliminate or greatly reduce the number of fatalities, injuries, and occupational illnesses in the noncoal mining industry which has historically been classified among the most

hazardous. To protect mine workers, the act requires that health and safety standards be developed, promulgated, and enforced. The Secretary of the Interior is authorized to issue a notice to the mine operator citing violations noted and to specify a reasonable time for total abatement of the hazard. If the mine operator fails to correct the violation within the time specified, inspectors may either extend the time for abatement, if there are extenuating circumstances, or issue an order withdrawing employees from the mine or affected area. Such withdrawals are commonly referred to as closure orders for noncompliance.

The inspectors are also empowered to issue an order requiring the immediate withdrawal of employees from the affected area if they find an imminent danger condition that could reasonably be expected to cause death or serious physical harm before the hazard can be abated. These withdrawals are commonly referred to as closure orders for imminent danger.

Following is a short summary of our findings.

--A total of 4,562 closure orders were issued during the period January 1, 1972 to September 1, 1975. Of these orders, 2,353 were issued for imminent danger situations, 1,925 for operators' failure to comply with violation notices, and 284 orders did not specify whether imminent danger or noncompliance were involved.

--The five standards most frequently cited in violation were:

1. Inadequate guards on moving machine parts (12 percent).

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2. Inadequate brakes on powered mobile equipment (8 percent).
 3. Men working near or under dangerous banks (7 percent).
 4. Failure to examine and test ground conditions (6 percent).
 5. Unsafe means of access to working places (5 percent).

--About 5 percent of the closure orders issued in 1974 resulted in closing an entire mine. About 39 percent of the orders resulted in closing a section of the mine; 43 percent resulted in withdrawing unsafe equipment from operation; and 11 percent involved personal protection violations, such as employees not wearing safety belts, life jackets, hard hats, and protective footwear.

--At September 1, 1975, all but 549 orders of the 4,562 closure orders had been abated (corrected) or withdrawn. About 47 percent of the closure orders were abated while the inspectors were still on the mining properties.

--Ninety-one of all the closure orders were issued as a result of accident investigations. In 11 of these, similar violations had been cited in the previous regular inspection. These investigations were conducted at 70 mining operations. The most prevalent violations cited involved lead and zinc, salt, gold and silver, limestone, clay and shale, and sand and gravel operations.

Mr. Chairman, the analysis of closure orders was only the first phase of our comprehensive review of MESA's administration of the 1966 act which we are conducting at this time. The statistics presented in our February report will be analyzed further as part of our current review.

We are examining also into Interior's:

- Health and safety standards,
- Procedures for inspecting mines and issuing violation notices and closure orders,
- Mine health and safety education and training programs for miners and mine operators,
- Oversight of State plans for mine health and safety,
- Closure orders appeals process, and
- Health and safety research and development efforts.

Our conclusions and recommendations will be presented in a report to the Committee at a later date.

This concludes my prepared statement. We would be glad to respond to any questions you or members of your Committee may have.